CLAIMS

1.   A Rankine cycle system comprising an evaporator (12) for heating a liquid-phase working medium with exhaust gas of an engine (11) so as to generate a gas-phase working medium, and a displacement type expander (13) for converting the thermal energy of the gas-phase working medium generated in the evaporator (12) into mechanical energy;

characterized in that, in order to make the pressure of the gas-phase working medium at the inlet of the expander (13) coincide with a target pressure, the system comprises control means (20) for calculating a feedforward value (N_{FF}) on the basis of the target pressure and the flow rate of the gas-phase working medium at the outlet of the evaporator (12), calculating a feedback value (N_{FB}) by multiplying a deviation of the pressure of the gas-phase working medium at the inlet of the expander (13) from the target pressure by a feedback gain (kp) calculated on the basis of the flow rate of the gas-phase working medium, and controlling the rotational speed of the expander (13) on the basis of the result of addition/subtraction of the feedforward value (N_{FF}) and the feedback value (N_{FB}).

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